

ABSTRACT

HIGH ACCURACY LASER FINE AUTOFOCUS SYSTEM

5 [0035] The present invention relates to the field of optical probe surface inspection by interferometry, and in particular to a method and a respective apparatus for fine-controlling the position of a predetermined probe location (21) relative to a fixed reference point (12) of a probe processing apparatus fixedly coupled to an auxiliary optical laser apparatus, in which method the position is controlled with optical means. In order to simplify the apparatus it is proposed to
10 provide a simply structured fine-control positioning system also based on the principle of interferometry. Basically, a lens-less optical arrangement is provided which uses a collimated input laser beam (10) and thus presetting said probe location position within a predetermined converging range of $1/4$ of the wave length of the applied fine-controlling positioning laser beam (10). Then, splitting said positioning laser beam having a linear polarity into a probe beam (S2, 16) and a reference beam (S1, 14), whereby a respective optical beam splitting means (12) represents said fixed reference point. Next, polarizing said probe beam (16) and said reference
15 beam (14) in different directions to each other. Then, recombining a beam (17) reflected from said probe location with said reference beam (14) and detecting a phase difference between said reflected beam and said reference beam. Lastly, controlling a table supporting said probe, such
20 that the detected phase difference is minimum.